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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,844	06/27/2003	Hiroyuki Iwahara	030776	4813

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EXAMINER

RENNER, CRAIG A

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,844

Applicant(s)

IWAHARA ET AL.

Examiner

Craig A. Renner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to because of the following informalities:

a. The drawings fail to comply with 37 CFR 1.84(p)(4) because a single reference sign has been used to designate plural distinct elements. Note, for instance, that "50" has been used to designate both a "main FPC" (as shown in FIGS. 4-6 and 13-14 and as disclosed initially in line 1 on page 10, for instance) and a "magnetoresistive... head device" (not shown in the drawings, but disclosed initially in line 2 on page 9, for instance).

b. The drawings fail to comply with 37 CFR 1.84(p)(5) because they do not include one or more reference signs mentioned in the description. Note, for instance, "C" (disclosed as an "area" in line 17 on page 13, for instance).

Corrected drawing sheets in compliance with 37 CFR 1.121(d), and/or an amendment to the specification in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

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corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The disclosure is objected to because of the following informalities:
 - a. In line 2 on page 15, "(Step (e))" should be changed to --(Steps (d) and (e))-- in order to be consistent with the remainder of the disclosure.
 - b. In line 4 of claim 2, "said flexible" should be changed to --said flexible printed circuit board-- in order to more clearly refer back to that set forth in line 6 of independent claim 1.
 - c. In lines 9-10 of claim 9, "said trunk flexible printed circuit" should be changed to --said trunk flexible printed circuit board-- in order to more clearly refer back to that set forth in line 6 of claim 9.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In lines 2-3 of claim 1, lines 2-3 of claim 8, lines 2-3 of claim 9, lines 2-3 of claim 11, and lines 1-2 of claim 12, each instance of "a head that records information from and/or reproduces information onto a disc" is indefinite as it is misdescriptive of the disclosure, which teaches/shows that the head records information onto and/or reproduces information from the disc (emphasis added).

b. In lines 4-5 of claim 10, "said wireless suspension" is indefinite because it lacks clear and/or proper antecedent basis.

c. Claims 2-7 inherit the indefiniteness associated with independent claim 1 and stand rejected as well.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Myokan (JP 10-134529).

Myokan teaches a disc unit comprising a head (28) that records information onto and/or reproduces information from a disc (21); a suspension (includes 25 and 27) that includes a top surface and a side surface, and supports the head on the top surface (as shown in FIG. 4, for instance); a flexible printed circuit board (60/66) attached to the side surface of the suspension through an air gap (as shown in FIG. 4, for instance), the flexible printed circuit board transmitting a signal indicative of the information to and from the head (paragraph [0045], for instance); and a damper (67) that damps oscillation of the flexible printed circuit board [as per claim 1]; wherein the damper includes a first layer (67a); and a second layer (67b), formed on the flexible printed circuit board and connected to the flexible printed circuit board, which elastically transmits the oscillation from the flexible printed circuit board to the first layer [as per claim 2]; and wherein the second layer is made of a viscoelastic material (paragraph [0043], for instance) [as per claim 3].

8. Claims 8 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Oberg (US 4,819,094).

With respect to claim 8, Oberg teaches a disc unit comprising a head (202) that records information onto and/or reproduces information from a disc (line 17 in column 1, for instance); and a flexible printed circuit board (includes 204, for instance) that transmits a signal indicative of the information to and from the head, the flexible printed circuit board having at least two layers (210 and 208, for instance), one layer (210, for

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instance) of which damps vibration generated in the other layer (lines 60-62 in column 3, for instance).

With respect to claim 12, Oberg teaches a long tail type suspension that supports a head (202) that records information onto and/or reproduces information from a disc (line 17 in column 1, for instance), the suspension comprising a printed circuit (204) that is electrically connected to the head (as shown in Fig. 2, for instance), the suspension including a long tail part (as shown in Fig. 2, for instance) that transmits a signal indicative of the information to and from the head, and is connectible to a main flexible printed circuit board which includes a preamp IC that amplifies the signal (i.e., the long tail part has the capability of being in connection with a signal amplifying preamp IC of a main flexible printed circuit board); and a damper (210) attached to the long tail part of the long tail type suspension (as shown in Fig. 4, for instance).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myokan (JP 10-134529).

Myokan teaches the disc unit as detailed in paragraph 7, *supra*, further comprising a spindle motor (22) that rotates the disc at a disc rotation speed, wherein the disc has a storage capacity, and wherein the first layer is made of a first constraint layer material. Myokan, however, remains silent as to the oscillation transmitting second layer being a "pressure sensitive adhesive double coated tape" as per claim 4, the first constraint layer material being "metal" as per claim 5 or "polyimide" as per claim 6, and the disc rotation speed being "10,000 rpm or higher" and the disc storage capacity being "60 GB or larger" as per claim 7.

Official notice is taken of the fact that pressure sensitive adhesive double coated tape is a notoriously old and well known oscillation transmitting material in the art. Official notice is also taken of the fact that any one of metal and polyimide is a notoriously old and well known constraint layer material in the art. Official notice is further taken of the fact that it is notoriously old and well known in the art to increase disc rotation speed in the same field of endeavor for the purpose of enabling faster access rates. Official notice is lastly taken of the fact that it is notoriously old and well known in the art to increase disc storage capacity in the same field of endeavor for the purpose of enabling more storage capability. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the

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oscillation transmitting second layer of Myokan be a pressure sensitive adhesive double coated tape, the first constraint layer material of Myokan be metal or polyimide, the disc rotation speed of Myokan be 10,000 rpm or higher, and the disc storage capacity of Myokan be 60 GB or larger. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the oscillation transmitting second layer of Myokan be a pressure sensitive adhesive double coated tape since such is a notoriously old and well known oscillation transmitting material in the art, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

One of ordinary skill in the art would have been motivated to have had the first constraint layer material of Myokan be metal or polyimide since any one of metal and polyimide is a notoriously old and well known constraint layer material in the art, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art. See *In re Leshin*, supra.

One of ordinary skill in the art would have been motivated to have had the disc rotation speed of Myokan be 10,000 rpm or higher since such enables faster access rates.

One of ordinary skill in the art would have been motivated to have had the disc storage capacity of Myokan be 60 GB or larger since such enables more storage capability.

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12. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Budde et al. (US 6,728,073).

With respect to claims 9-10, Budde teaches a disc unit (10) comprising a head (12) that records information onto and/or reproduces information from a disc (16); a suspension (26) that supports the head and includes a circuit (includes adjacent 40, for instance) that is electrically connected to the head, a trunk flexible printed circuit board (46) connected to the circuit of the suspension, the flexible printed circuit board transmitting a signal indicative of the information to and from the head; a main flexible printed circuit board (shown in FIG. 1, for instance), connected to the trunk flexible printed circuit board; and a damper (66) that damps oscillation of the trunk flexible printed circuit board [as per claim 9]; wherein the trunk flexible printed circuit board is connected to the circuit at a first junction, and the main flexible printed circuit board at a second junction, and wherein the trunk flexible printed circuit board is fixed to the wireless suspension between the first and second junctions (as shown in FIG. 2, for instance) [as per claim 10].

With respect to claim 11, Budde teaches a disc unit (10) comprising a head (12) that records information onto and/or reproduces information from a disc (16), a long tail type suspension (26) that supports the head and includes a circuit (includes adjacent 40, for instance) that is electrically connected to the head, the suspension including a long tail part that transmits a signal indicative of the information to and from the head (as shown in FIG. 2, for instance); a main flexible printed circuit board (shown in FIG. 1, for instance) connected to the long tail part of the long tail type suspension; and a

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damper (66) attached to the long tail part of the long tail type suspension (as shown in FIG. 2, for instance).

Budde, however, remains silent as to the main flexible printed circuit board including a "preamp IC". Official notice is taken of the fact that it is notoriously old and well known in the art to have a main flexible printed circuit board include a preamp IC in the same field of endeavor for the purpose of enabling signal amplification. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the main flexible printed circuit board of Budde include a preamp IC. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the main flexible printed circuit board of Budde include a preamp IC since such enables signal amplification.

Pertinent Prior Art

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Ohwe (US 5,825,590), Shiraishi (US 6,282,062), Hawwa et al. (US 6,310,746), Heim (US 6,353,515), Himes et al. (US 6,704,157), Himes et al. (US 2003/0011936), Shin (US 2003/0086214), and Oberg (GB 2 193 833), which each individually teaches a disk drive flex circuit damping configuration; and Girard (US 6,515,832), which teaches a disk drive suspension flex circuit covering configuration.

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Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (703) 308-0559. The examiner can normally be reached on Tuesday-Friday 7:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Craig A. Renner
Primary Examiner
Art Unit 2652

CAR